THURSDAY, JULY 20, 1871

THE NEWCASTLE-UPON-TYNE COLLEGE OF PHYSICAL SCIENCE

WE have apprised our readers from time to time of the progress of the arrangements for the proposed College of Physical Science in Newcastle. In our report of the meeting held on the 25th of March, at which the scheme was first publicly broached, we expressed an estimate of the administrative ability of the committee appointed to carry into effect the resolutions then adopted, which events have amply justified. A second public meeting was held in Newcastle on Saturday last to receive at the hands of the executive an account of their labours, and the Report now before us shows the energy which has been brought to bear upon a complicated and laborious task. Few who read the announcement of the first meeting—probably few even of those who were there present—supposed that the ship, of which the lines were then but talked of, could be ready at the expiration of little more than three months to launch and make her trial voyage.

We need not reprint the whole Report, as portions of it are merely the official announcement of arrangements already made public; but its contents may be briefly summarised. The Committee state that—

"At their first meeting it was found that the scheme had so far interested the general body of the inhabitants of the district, that very much more support would be forthcoming than was sufficient to provide for the six years' experiment; and as the University of Durham intimated that the promised aid (1,000*l.* per annum) would be made permanent if a capital sum could be obtained sufficient to secure the continuance of the support from the district, it was considered advisable to appeal to the public for 30,000*l.* This sum was mentioned not as being completely adequate to meet the expenses of a collegiate institution, but as providing sufficient funds for the commencement of such an undertaking."

Towards this fund 21,460*l.* has been obtained, together with three subscriptions each of 100*l.* a year, and a hope is expressed that within the next few months between 30,000*l.* and 40,000*l.* may be raised.

The election of Professors in Mathematics, Geology, Chemistry, and Experimental Physics, and the determination of the Committee to open the College in October are announced. It is recommended that the lecture fees should be such as may secure a large attendance of students and it is suggested that five guineas yearly for each course, and one guinea entrance, would be suitable to this end.

It had been agreed by the committee to propose the following Constitution. The governing bodies of the College to be:—firstly, the *Governors*, secondly, the *Council.*

1. The *Governors*; to be limited at first to forty-seven, of whom nine are to be *ex-officio* members of the body. Of the remaining thirty-eight, three are to be north-country Members of Parliament, and two Professors in the College. Nine are to be elected by subscribers to the fund, and the rest in different proportions by the Chapter of Durham, the Senate, the Convocation, the Municipal Councils of twelve northern towns, and the Scientific Societies of the district. Of the elected members one-third are to vacate their seats every two years, but are to be eligible for re-election.

2. The *Council*, which is proposed to "consist of fifteen members, including a Chairman, of whom five shall be members of the Chapter, Senate, or Convocation of the University of Durham; and of these one shall be the Warden, and of the other four at least two shall be members of the Senate; but all members of the Council shall be elected out of and by the Governors themselves. They shall be elected for five years, one-third of the number resigning their places every three years, but being re-eligible. They shall in all cases retain their appointment for two years."

This Council is to meet monthly, and to transact all the ordinary business of the College, arranging the periods of study and fees of the students, and to assume the general direction of affairs.

To a committee of this body, with which all the Professors shall be combined, is entrusted the more strictly academical administration and discipline, including the number and direction of the Professors' Lectures, subject to the general control of the Council.

In conclusion, it is proposed "that while steps are being taken to draw up the necessary documents and to proceed with the election of the Council in the terms of the Constitution, the government of the College shall remain in the hands of the Executive Committee, who sha act as the Council for the period of one year.

"At the invitation of the North of England Institute o Mining and Mechanical Engineers, the Literary and Philosophical Society, the Medical College, and the Natural History Society, occupying a group of buildings in a good situation already dedicated to scientific purposes, a suitable suite of rooms for the lectures, private rooms for the professors, laboratories, and offices, has been secured, which will be sufficient for the accommodation of the College for some years, when it is hoped the success of the Institution will be so secured that a sum of money sufficient to build separate and suitable accommodation will be easily procured."

It is almost needless to say that this report was well received and unanimously adopted, and that the meeting willingly accorded to the Executive Committee the proposed continuation of their powers for a year. In the discussion some remarks were made by gentlemen taking an active part in the labours of the Committee, which are worthy of note.

Mr. Lowthian Bell alluded to the present available accommodation for the College as insufficient, except for temporary purposes, and suggested the probable necessity for building at any rate new laboratories. He also bade the meeting to regard the four professorships already established as but a commencement, there being many other departments of Physical Science which must ere long be provided for, and made special allusion to the claims of Biology to representation.

It is true that another member of the committee with very pronounced political views, suggested that a chair of Political Economy should be the next subject adopted, but as he did not attempt to show the position of Political Economy in his scheme of physical science, it was scarcely thought necessary to argue the point.

In far wider spirit were the remarks of a subsequent speaker, who looked hopefully forward to the time when

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success in teaching physical science should enable them to enlarge the basis of the Institution, so as to include all the higher branches of a liberal education.

We have, on more than one occasion, advocated the addition of a Biological chair to the four already agreed upon, for it has seemed to us an anomaly that a School of Physical, or, to use the correlative term, Natural Science, should be without teaching in general Natural History, especially in a locality in which excellent facilities exist. But there is another view which has been prominently in our mind. If the College were intended to be a mere mining and engineering school, established to enable engineers and coal-viewers to educate their pupils with less labour and cost, its claim upon the general public would be small. It is due to the public that Science for its own sake,—Science with less direct reference to considerations of pounds, shillings, and pence, should be recognised; and in no way could this be so readily done, under existing circumstances, as by the establishment of a Chair in Biology.

We readily admit the pre-eminent importance of the subjects selected to commence with, and as willingly record our confidence that the Executive Committee will approach this as all other subjects with the single desire to do what is right.

Finally, we would make one comment on the attitude of Durham University. For many years past it has been regarded as almost hopeless to expect any active assistance in educational matters from that hitherto somewhat sleepy body. But with the new Dean seems to commence a new *régime*, and facts appear to bear out the testimony of many of the speakers at Saturday's meeting, that in all arrangements in connection with the new College, the University authorities have shown the widest liberality and unselfishness.

The vast importance of schools of this sort, and the prospect of a movement with a similar object in the West Riding of Yorkshire, renders needless any apology for reviewing with some detail this last addition to our scientific institutions.

PERCY'S METALLURGY OF LEAD

The Metallurgy of Lead, including Desilverisation and Cupellation. By John Percy, M.D., F.R.S. (London: J. Murray, 1870.)

THE preparation of metallic lead from its several ores, amongst which galena stands foremost, presents to us processes and circumstances which, though generally simple, are amongst the most interesting and delicate in the whole range of productive metallurgy. It is therefore with even more expectation than attached to his former volumes on Copper, Zinc, and Iron that we opened Dr. Percy's present volume; and, in finding a copious and well-arranged compilation, we have not been disappointed, although we might have anticipated something more of original research.

It would, indeed, be improbable, with the great power of obtaining information directly from manufacturers necessarily belonging to the influence and position of a Professor at the Government School of Mines, that the result should be any other. Accordingly, the reader who desires to obtain a distinct and tolerably detailed though "bird's-eye" view of all the various forms of commercial metallurgy of lead (in humbler phrase of lead smelting) will here find a classified survey of it as practised in Great Britain, all over Europe, and in North America, with some notices of attempts made in South America. Of the very ancient lead-smelting processes of Asia, probably the earliest practised on a large scale in the world, and still believed to be in use in China and Japan, we do not find a word. Of recent methods in use in Japan there is a brief notice from Mr. Pumpelly at p. 384, and in China at p. 479.

The first one hundred pages are occupied with the physical and chemical properties of lead viewed from the metallurgical stand-point, one which we cannot but think is always essentially misty and unsatisfactory. The physics and chemistry of any metal ought to be the same to everybody, and it seems to us ought to be fully and accurately known before ever the student opens a metallurgical book. If that be admissible, then metallurgy proper has its limits advantageously defined and narrowed, and its treatises ought to be then divided into two distinct classes—the one like the small octavo volume of Rammelsberg (that most elegant and classic work, now several years published, but yet as true and valuable in almost every page as when it was wet from the press), which teaches the *principles* of metallurgy, that is to say, the principles of those reactions which occur in the established and fully-adopted processes of commercial metallurgy, without going into any details as to apparatus, furnaces, or criticism, as to whether this or that method or construction of plant be better or worse. The other, consisting *not* of any attempt to aggregate in one volume the details of manufacturing apparatus, of trying to tell all about the minutiæ, of all the diversities of all the commercial metallurgies in the world —which, we are compelled to say, is impossible within even the very diffuse limits taken by Dr. Percy—will best consist, we think, of *monographs*, such as those of M. Grüner, in the *Annales des Mines* of a year or two back, on this subject of lead. Each one of these monographs, with the necessary plates of illustration, should really, and in a genuinely practical way, exhaust one single national or special system of smelting of lead, or of some one other metal.

Such has been the plan almost universally adopted in Germany and France, and with results at once far more comprehensive, clear, and exact, than are practicable from the hand of any one man, however able, or in any volume though bulky, illustrated only by woodcuts however excellent, and those of Dr. Percy's present volume are remarkably clear and good.

For the practical and exhaustive description, in fact, of any single smelting process largely in commercial use, an atlas of folio copper plates, forming a volume in itself, is indispensable. The result of the contrary view of the metallurgist's descriptive task, is inevitably that want of balance, and yet incompleteness here and there, which characterise all these metallurgic volumes of Dr. Percy. Thus, for we feel bound to give an example to sustain our criticism, in his volume on Iron, Dr. Percy goes into the question of blowing machines, blast cylinders, and the like—a thing really as foreign to the metallurgy of iron as the theory and practice of building chimney stalks would be to that of lead;

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